



National Conversation
on Climate Action

April 22, 2009

Tucson Spotlight
Conversation on
Climate Action

Summary Report





National Conversation
on **Climate Action**
April 22, 2009

TUCSON SPOTLIGHT CONVERSATION ON CLIMATE ACTION SUMMARY REPORT

Table of Contents

| | |
|---|----|
| Introduction..... | 2 |
| Climate Change & Human Health/Food Security Group Summary..... | 3 |
| Climate Change & Drought Preparedness Discussion Group Summary..... | 5 |
| Climate Change & Affordable Housing/Building Energy Use Discussion Group Summary..... | 9 |
| Climate Change & Mobility..... | 11 |
| Climate Change & Jobs/Economy..... | 14 |



National Conversation on Climate Action April 22, 2009

TUCSON SPOTLIGHT CONVERSATION ON CLIMATE ACTION

Introduction

Tucson was selected as one of 10 communities to host a “Spotlight” Conversation on Climate Action on Earth Day, April 22, 2009 as part of the National Conversation on Climate Action. ICLEI—Local Governments for Sustainability, Yale School of Forestry and Environmental Studies, and *AmericaSpeaks* partnered to present the National Conversation, a series of local-level community engagement events that took place nationwide on Earth Day. Information about the national event is available at: <http://www.climateconversation.org/>

The Tucson event was hosted in partnership by the City of Tucson, Pima County, and the University of Arizona as a part of all three entities’ ongoing efforts to address climate change. Over 100 people attended Tucson’s Spotlight Conversation, representing a broad range of community members and drawing on the knowledge of local climate change experts. After learning about the potential effects of climate change in southern Arizona and the resulting challenges our community may face, participants were asked to brainstorm potential solutions to those challenges in five discussion groups focused on Climate Change and:

- Human Health/Food Security
- Drought Preparedness
- Affordable Housing/Building Energy Use
- Mobility
- Jobs/Economy

The discussion and contributions from the community at the Spotlight Conversation will be used by the City of Tucson during the development of a Climate Change Mitigation Plan to reach the goals of the Mayors’ Climate Protection Agreement (MCPA) that the Tucson Mayor and Council signed on to in 2006. The goals of the MCPA are to reduce greenhouse gas emissions to 7% below 1990 levels by 2012. Pima County will use the community’s feedback in their planning efforts to reach the goals of the Sustainability Resolution passed by the Board of Supervisors in 2007, and The University of Arizona will use the information in their planning efforts to reach the goals of the American College and University Presidents Climate Commitment, signed by UA President Shelton in 2007.

More information about the Tucson Spotlight Conversation on Climate Action including a copy of this report is available online at: www.tucsonaz.gov/ocsd/climateaction



National Conversation
on **Climate Action**
April 22, 2009

TUCSON SPOTLIGHT CONVERSATION ON CLIMATE ACTION SUMMARY REPORT

Human Health/Food Security Discussion Group Summary

Facilitators: Barbara Warren, M.D., Physicians for Social Responsibility
Varga Garland, Community Food Bank of Southern Arizona

MAJOR GOALS, PRODUCTS & OUTCOMES

1. Change regulations to promote small, local, and organic farming

- a. Change the rules regarding fallow land and food production to allow use of the land, where currently restricted.
- b. Subsidize new farmers.
- c. Change USFDA regulations that restrict/penalize organic, small and local farmers. Regulations should protect small farms.
- d. Create more equity by subsidizing small farmers and local growers so they can compete with agri-business.
- e. Support the expansion of local farmer's markets so more are distributed throughout the community.
 - i. Make farmer's markets for affordable, possibly through subsidies.
- f. Offer food stamps for organic food, especially at farmer's markets.
- g. Local food sources are not recognized by the USFDA so many indigenous foods need to be accounted for locally.

2. Ensure food production is healthy and corresponds with needs

- a. Food insecurity is growing, yet the U.S. produces 4,000 calories per person per day.
- b. The food produced is not necessarily healthy.
- c. The food system shouldn't degrade the environment.
- d. Solve issues of food additives and contamination.

3. Data Collection Needs

- a. Determine how water can be used sustainably for local food production.
- b. Identify the location of food types produced.
- c. Determine the food carrying capacity of our community by defining the region for "locally" grown and how much food can be produced in this area.
- d. Assess the environmental costs of the food system, including the CO₂ generated from processing and transporting food.
- e. Develop indicators for assessing the food system.

4. Education for All

- a. Develop models and best practices through community pilot projects, such as community gardens.
- b. Promote unbiased research and make the information available on the internet.
- c. Schools should be required to disclose their funding sources, food sources, contractors, etc.
- d. Increase access to informed/enlightened healthcare and nutritional information and define sources, show evidence, and show who is publishing the information.
- e. Increase climate change education.
- f. Education on healthy eating, farming projects, economics, and current issues.
- g. Develop public trust of information and credibility.
- h. Conduct self-reliance training- how to grow your own food.
- i. Educate the community about locally grown food sources and markets.
- j. Provide youth education for a healthy lifestyle:
 - i. Dietary information for children- good food vs. healthy eating
 - ii. Music
 - iii. Young farmers
 - iv. Food entrepreneurs
 - v. Increase school gardens and gardening/food courses in schools.

5. Prepare for Economic Changes

- a. Strengthen farmer's markets.
- b. Use/convert fallow land for food production.
- c. Conduct a community assessment of economic indicators with more transparency.

6. Prepare for the health-related effects of climate change

- a. Promote spiritual and mental health to circumvent social upheaval.
- b. Language terms to reflect resolutions, counseling support.
- c. Crisis intervention groups can address spiritual needs.
- d. Promote stress management education/skills development.
- e. Offer climate change counseling and support.

WHO DOES THE WORK

1. The University of Arizona
2. Pima County
3. City of Tucson
4. The Community

RESOURCES NEEDED

1. Community Engagement
2. Local, State, and Federal Government
3. Neighborhood Associations
4. Funding Organizations
5. Farmer's Markets
6. Community Gardens
7. Local Plants/Native Seeds
8. Local Organizations- Community Food Bank, Environmental Organizations, Health Organizations, Schools, Hospitals

OTHER NOTES

The Common Security Clubs model was identified as one format for building trust and utilizing volunteers to educate neighbors.



National Conversation
on **Climate Action**
April 22, 2009

TUCSON SPOTLIGHT CONVERSATION ON CLIMATE ACTION SUMMARY REPORT

Drought Preparedness Discussion Group Summary

Facilitators: Ann Audrey, City Office of Conservation and Sustainable Development
Kathy Chavez, Pima County Wastewater Department

MAJOR GOALS, PRODUCTS, OUTCOMES

1. Determine the full cost of water, energy and resources

- a. Create a new economic model for costing these elements that incorporates replacement costs, externalities, etc.
- b. Clearly reveal all costs to society for “new supplies of water” including social, environmental, energy costs, full economic costs. Talk to the public about this.
- c. Growth should pay for itself; without providing this funding, infrastructure will lag behind public needs.
- d. Determine the incidence of pharmaceuticals, pesticides and other constituents in CAP water, and make intelligent decisions about its use.

2. Conduct broad education efforts

- a. Create Citizen’s Sustainability Corps.
- b. Undertake an education campaign about drought.
 - 1) Make information about drought preparedness available to the public as a part of their everyday life. (e.g. regular column in newspaper) Get the message out!
 - 2) Emphasize that drought is the new “normal.” Emphasize the intrinsic variability of rain in the desert.
 - 3) Create public education and motivate public commitment to change.
 - 4) Have more involvement with schools. Empower schools/students to take action.

3. Develop and conduct effective, authentic communication between government and public

- a. Issues with City’s greywater ordinance (see addendum to brainstorming session at the end of this summary).
- b. This is a turning point
 - 1) Figure out the most effective way to bring in new voices to the table, especially youth.
 - 2) Do not continue to conduct “business as usual.”
 - 3) Analyze extreme future scenarios for drought and other conditions when preparing for the future.

- 4) Determine what it takes to get people to shift their paradigms. Incentives? Other mechanisms? How can these mechanisms be made to work better?
- 5) Scale of change needed is from households up to jurisdictions.
- c. Conduct a Community Conversation on Drought
 - 1) Determine community goals regarding water and the community's vision for using available water.

4. Institutions and jurisdictions must “walk their talk”

- a. All government institutions should lead by example.
- b. Fully implement codes and standards.
 - 1) Improve Native Plant Preservation Ordinance (NPPO), WASH (Watercourse Amenity, Safety and Habitat), Pima County Stormwater Manual. Make the requirements specified in these “shall” not “may”.
 - 2) Make sure codes are fully enforced by jurisdictions to protect the environment.
- c. County should implement its Drought Plan now.
- d. Where will meaningful change occur between government agencies?
- e. Develop a fast feedback loop to modify City, County and UA efforts to make sure they are as effective as possible in real time.

5. Institute Best Management Practices for all elements related to drought preparedness

- a. Reduce heat load on urban environment
 - 1) Cover bus stops, courtyards and other spaces in the community where people gather. Make more shade mandatory.
 - 2) Create landscape guidelines for new construction addressing use of native plants, low water use plants, water harvesting, etc.
 - 3) Mitigate for impending higher temperatures by installing more energy efficient cooling systems for commercial and residential users and placing windows properly for winter heat gain, summer heat deflection.
 - 4) Determine implications of more fall rainfall on native plants and adjust requirements as necessary.
- b. Recharge more water
 - 1) Remove concrete from washes to allow more water to infiltrate in place. Make these “shovel-ready” projects.
 - 2) Restore Santa Cruz River by using gabions and other techniques to get it to flow again.
 - 3) Add meanders back to straightened channels.
- f. Improve water use efficiency
 - 1) Reduce evaporation losses from CAP canal and CAP recharge basins
 - 2) Raise Tucson Water rates by 50% to deter water use.
 - a) Use an inclining block rate structure (charge more per water unit for large-volume water users than small-volume water users).
 - b) Charge penalties for excessive water use.
 - c) Report water bills in units of gallons instead of ccfs (hundreds of cubic feet).
 - 3) Incorporate the full cost of water in water bills.
 - 4) Make maximum use of CAP water, and defer groundwater pumping so it can be used in the future in case of CAP interruption.
 - 5) Tax swimming pools, build more community pools instead for better water use efficiency.

- 6) Use Australian examples for water harvesting. Research global Best Management Practices.
- 7) Shunt shower water to toilet for use in flushing.
- 8) Make water harvesting mandatory for residential customers.
- 9) Plan for massive water harvesting on every roof with incentives for fast action.
- 10) Stop using potable water to flush toilets (constitutes 25 – 30% of residential water use).
- g. Sustainability techniques
 - 1) Combine solar panels with water harvesting
 - 2) Harvest energy from flowing water
 - 3) Insulate all roofs to get high R values for all
 - 4) Use composting toilets to save potable water. Use the compost in the garden
 - 5) The Agricultural industry should be responsible for farm wastes. Need more pollution management to address effects on water supply.
- 6. Determine the region's carrying capacity and incorporate it into planning**
 - a. Do not do inter-basin water transfers or desalinization of sea water to supply Tucson. Tucson should live within its own water budget.
 - b. Create a community water budget that reflects possible scenarios including CAP shortages.
 - c. We have exceeded the carrying capacity for land, water and power. Population should decrease by 50%.
 - d. Reach community agreement on population carrying capacity. Look at trade-offs between water use, resource use, and population.
 - e. Get an understanding of community sustainability that takes into account impacts to other areas (e.g. ecosystem needs, etc.).
 - f. Incorporate wildlife needs and environmental needs in the water budget.

WHO DOES THE WORK

1. Major efforts:
 - a. University of Arizona
 - 1) Make sure plans, visions and goals are manifested at the UA.
 - 2) UA should be a learning laboratory that is tied to the wider Tucson and Southeast Arizona community.
 - 3) Students should be tapped for work opportunities and involvement.
 - 4) Cover UA with water harvesting techniques and monitor impacts to UA's water budget. Results should show the effectiveness of water harvesting.
 - b. Pima County
 - 1) Create positions for sustainability extension agents.
 - 2) Create stipends for youth to implement sustainability.
 - c. City of Tucson
 - 1) Create stipends for youth to implement sustainability.
 - d. Citizens take on their appropriate roles
2. Establish strong links with partners in the efforts:
 - a. Faith-based organizations
 - b. Nonprofit organizations
 - c. Neighborhood Associations

- d. Tribes
- e. Health community
- f. School community
- g. Boards and Commissions under jurisdiction auspices
- h. Economic partners

RESOURCES NEEDED

- 1. Political will
 - a. Citizens should be placed at the table in proportionate numbers to developers.
- 2. Media assistance
- 3. Funding
 - a. Increase water rates.
 - b. Increase impact fees.
 - c. Find alternative economic engines.
 - d. Tax private swimming pools.
 - e. Full cost recovery on development.
 - f. Reflect energy costs to deliver water in the water bills.
- 4. Data and expertise
 - a. Need input from experts in the many topics listed above.
- 5. Citizen empowerment and action
 - a. Conduct more community dialogs like this one.
 - b. Promote community engagement.



National Conversation
on **Climate Action**
April 22, 2009

TUCSON SPOTLIGHT CONVERSATION ON CLIMATE ACTION SUMMARY REPORT

Affordable Housing/Building Energy Use Discussion Group Summary

Facilitators: Corky Poster, The Drachman Institute
Rich Franz-Under, Pima County Green Building Program

MAJOR GOALS, PRODUCTS & OUTCOMES

- 1. “Green” existing houses and neighborhoods with an expediter**
 - a. Improve technology to facilitate conservation.
 - b. Incorporate technologies for energy efficiency into existing housing stock.
 - c. Examples included: smart metering, use of adobe and straw bale, green roofs, passive and active solar, improved design and shading/landscaping, generation of energy from hot asphalt, permaculture with native vegetation and use of water run-off.
 - d. City/County government (development services) should facilitate efficiency retrofits instead of inhibit them.
 - e. Address aging population occupying the aging housing stock.
 - f. Neighborhood competitions for resource efficiency.
- 2. New development supports resource efficiency**
 - a. New development should finance the retrofits of existing development.
 - b. New development should include smaller houses, more landscaping, smarter design strategies such as passive solar, energy efficiency, use of local and alternative building materials such as adobe and straw bale, and shade requirements.
 - c. Institute a climate change impact fee (such as the one in Aspen, CO).
- 3. Land use and transportation patterns support affordable “green” housing**
 - a. Develop more community-oriented neighborhoods, such as co-housing communities.
 - b. Quality-based urban core enhancements.
 - c. Development patterns that reduce reliance on automobiles.
- 4. Create a Solar Authority funded by sales taxes (similar to the RTA) to accelerate the use of solar energy**

WHO DOES THE WORK

1. The University of Arizona
2. Pima County
3. City of Tucson
4. Nonprofit organizations
5. Neighborhoods

RESOURCES NEEDED

1. Political Will
 - a. Legislative support at all levels.
 - b. Public support.
2. Funding
 - a. Funding from local government.
 - b. Green loans paid by energy savings.
 - c. TEP loans (Demand Side Management at the neighborhood scale).
 - d. New development pays for retrofits.
 - e. Institute a climate change Impact Fee (Aspen, CO model).
 - f. Solar Authority- solar tax.
 - g. Use Stimulus money for weatherization of existing housing stock.
 - h. Neighborhood-based revolving loans.
3. Data and Expertise
 - a. Technical advisors.
 - b. Collection and dissemination of best practices.
4. Neighborhood coordinators



National Conversation
on **Climate Action**
April 22, 2009

TUCSON SPOTLIGHT CONVERSATION ON CLIMATE ACTION SUMMARY REPORT

Mobility Discussion Group Summary

Facilitators: Katie Gannon, The Drachman Institute
Rebecca Ruopp, City of Tucson Dept. of Urban Planning and Design

MAJOR GOALS, PRODUCTS, OUTCOMES

1. Reduce CO₂ emissions

- a. Encourage hybrid and alternative-fuel vehicles, including infrastructure for hydrogen vehicles.
- b. Invest in light rail, expanded bus service, bicycle and pedestrian infrastructure such as storage facilities and shade.
- c. Place high priority on low CO₂-emitting transit.
- d. Plant trees.
- e. Reduce electricity consumption by planting on east and west building sides.
- f. Localize production and distribution systems (ex. food).

2. Reduce Urban Heat Island effect

- a. Plant trees.
- b. Reduce pavement and hardscape.
- c. Capture and retain rainwater.
- d. Pass skinny street ordinances.
- e. Reduce mandated parking requirements.

3. Build “green” infrastructure to support bicycling and walking, and to mitigate warming and flooding

- a. Build a network of (native) street trees.
- b. Re-design neighborhood drainage systems to support (native) trees/vegetation and berms/swales/basins/curb cuts (rainwater harvesting features).
- c. Re-design neighborhood streets: re-allocate space to support “green” infrastructure and active living.
- d. Incorporate multiple uses along green corridors: walking and bicycle routes, wildlife habitat & corridors, natural drainage systems, open space, recreation.

4. Reduce auto demand and vehicle miles travelled

- a. Prioritize investment in active transportation infrastructure.
 - 1) Create and connect bicycle networks.

- 2) Ensure human comfort on bicycle and pedestrian routes (micro-climates).
- 3) Install safety improvements: crossings, signage, striping, and install facilities to support bicycling and walking in the urban core.
- b. Seed pilot projects to demonstrate low-cost investment and success of good walking and bicycling routes.
- c. Neighborhood-based school attendance boundaries, walking school buses, bike trains to school.
- d. Increase the number of and improve bus stops with shade and seating.
- e. Stop subsidizing auto demand (inducing auto demand) with road widening and investment in auto facilities disproportionate to other (lower cost, more beneficial) modes.
- f. Tax gasoline to fund green infrastructure construction.
- g. Change land use patterns to facilitate alternative modes of transportation and reduced miles traveled, such as the Desert Village Model.*

5. Educate the public

- a. Begin initiatives at all scales: individual lots, schools, public rights-of-way, parks, and drainage ways.
- b. Build demonstration projects that show how green streets create livable neighborhoods.
- c. Utilize school grounds as living laboratories, water harvesting projects, community gardens, and orchards.
- d. Provide incentives to businesses.
- e. Government facilities should demonstrate going green.
- f. A cultural paradigm shift requires education and physical, functional changes to the built environment.

6. Facilitate Wildlife Adaptation

- a. Re-establish urban wildlife habitat, native birds.
- b. Create wildlife corridors.
- c. Build wildlife crossing structures across roadways.
- d. Facilitate migration.
- e. Ensure water quantity and accessibility.

7. Create green infrastructure plans at the neighborhood, watershed and regional scales.

WHO DOES THE WORK

- 1. Individuals- Homes, private property and rights-of-way in front of residences.
- 2. Neighborhood Associations- Local streets, parks, rights-of-way, collector streets.
- 3. City of Tucson- Department of Transportation, Zoning, Development, Parks and Recreation, Street Maintenance and Flood Control.
- 4. Pima County- Transportation, Natural Resources, Planning, Safe Routes to School.
- 5. PAG- RTA, Transportation Planning, Regional Planning.
- 6. State of Arizona- School districts, schools, school yards and school grounds, curriculum.
- 7. University of Arizona- Curriculum, campus infrastructure, outreach, technology transfer.
- 8. Private Sector- Businesses and companies, demonstration projects.
- 9. Non-profit Organizations- Churches, activists, groups, clubs, bicycling community, etc.

10. Any part or group from the above list-coalitions of partners

11. Trees for Tucson

RESOURCES NEEDED

1. Policy Changes
 - a. Schools- school siting, joint-use agreements, schools as community centers.
 - b. Transportation- skinny streets, street trees installation and maintenance, natural drainage systems, reduced hardscape, balanced transportation policies that do not favor automobiles.
 - c. Parks and Rec-sustainable desert park design.
2. Regulations- Parking requirements are excessive, should mandate intensive tree planting
3. Leadership
4. Partnerships- Neighborhoods, schools, Trees for Tucson, TDOT, etc.
5. Money
 - a. Reallocation of transportation funds
 - b. Taxes
 - c. Incentives
 - d. Disincentives
6. Water (rainwater harvesting)
7. Buy-in at all levels of government bureaucracies

OTHER NOTES

* Contributors suggested the adoption of the Urban Village and Nodal (transit hub) models. Studies show that land use changes follow changes to the transportation infrastructure. Green infrastructure will create demand for homes in the inner city; light rail lines attract businesses and housing infill (See Portland, Phoenix).



National Conversation
on **Climate Action**
April 22, 2009

TUCSON SPOTLIGHT CONVERSATION ON CLIMATE ACTION SUMMARY REPORT

Jobs & Economy Discussion Group Summary

Facilitators: Dr. Pat Patton, UA Eller College of Management
Jim Mize, Pima County OneStop Career Center

MAJOR GOALS, PRODUCTS & OUTCOMES

1. Diversify the local economy and increase wages

- a. Develop new technologies and promote the expansion of industries such as optics and biomedical.
- b. Move away from transitional jobs; jobs should capitalize on the potential of our workforce.
- c. Develop an economy that is not dependent on the housing industry.
- d. Connect the UA and TREO to develop an outreach program for recruiting companies into the region.
- e. Connect UA research and development to local economic development.
- f. Economic development should consider quality of life and cost of living. Both ecological and economic resiliency are important.
- g. Support small business development.
- h. Tap into transition technologies as economic drivers.

2. Support and encourage the growth of the new “green collar” economy

- a. Develop an initiative to define the “green industry” at the federal level.
- b. Focus resources on all “green” industries, not just solar.
 - i. Jobs for restoration
 - ii. Green building
 - iii. Biologists/botanists in nurseries
- c. Weatherizing homes is an economic development strategy that can create summer jobs for youth.
- d. Create jobs related to water management:
 - i. Hydrology
 - ii. Wastewater
 - iii. Graywater
 - iv. Urban agriculture
 - v. Pipelines/canals
 - vi. Solar desalination
- b. Address the private industry’s view of “green” as a gimmick.
- c. Provide incentives for “green” industries to move into the region.

3. Improve the resiliency of the education system

- a. Increase trade school, Pima College and UA efforts to prepare the workforce for jobs that are related to climate change and other jobs of the future economy.
- b. Value education as a vital component of a thriving economy.
- c. Ensure funds are available for youth to attend college.

4. Implement a carbon trade system

WHO DOES THE WORK

1. Education from the City of Tucson and Pima County
2. Collaboration with the Private Sector
3. University of Arizona

RESOURCES NEEDED

1. Education/workforce training
2. Private investment
3. Energy from the sun
4. Expanded use of energy alternatives such as geo thermal
5. Informed water management
6. Current housing stock
7. Political support for education and economic development outreach



City of Tucson
Office of Conservation and
Sustainable Development
201 N. Stone Ave., 3rd Floor
Tucson, Arizona 85701
520-791-4675
www.tucsonaz.gov/ocsd



Pima County Administrator's Office
130 West Congress St., 10th Floor
Tucson, Arizona 85701
(520) 740-8661
www.pima.gov



The University of Arizona
1401 East University Blvd.
Tucson, Arizona 85719
(520) 621-5511
www.arizona.edu/